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                                  H 5

IIIIIIIII     MMM         MMM     GGGGGGGGGGGG  DDDDDDDDDDDD     MMM         MMM  PPPPPPPPPPPP
IIIIIIIII     MMM         MMM     GGGGGGGGGGGG  DDDDDDDDDDDD     MMM         MMM  PPPPPPPPPPPP
IIIIIIIII     MMM         MMM     GGGGGGGGGGGG  DDDDDDDDDDDD     MMM         MMM  PPPPPPPPPPPP
   III        MMMMMM   MMMMMM  GGG              DDD         DDD  MMMMMM   MMMMMM  PPP         PPP
   III        MMMMMM   MMMMMM  GGG              DDD         DDD  MMMMMM   MMMMMM  PPP         PPP
   III        MMMMMM   MMMMMM  GGG              DDD         DDD  MMMMMM   MMMMMM  PPP         PPP
   III        MMM   MMM   MMM  GGG              DDD         DDD  MMM   MMM   MMM  PPP         PPP
   III        MMM   MMM   MMM  GGG              DDD         DDD  MMM   MMM   MMM  PPP         PPP
   III        MMM   MMM   MMM  GGG              DDD         DDD  MMM   MMM   MMM  PPP         PPP
   III        MMM         MMM  GGG              DDD         DDD  MMM         MMM  PPPPPPPPPPPP
   III        MMM         MMM  GGG              DDD         DDD  MMM         MMM  PPPPPPPPPPPP
   III        MMM         MMM  GGG              DDD         DDD  MMM         MMM  PPPPPPPPPPPP
   III        MMM         MMM  GGG   GGGGGGGGG  DDD         DDD  MMM         MMM  PPP
   III        MMM         MMM  GGG   GGGGGGGGG  DDD         DDD  MMM         MMM  PPP
   III        MMM         MMM  GGG   GGGGGGGGG  DDD         DDD  MMM         MMM  PPP
   III        MMM         MMM  GGG         GGG  DDD         DDD  MMM         MMM  PPP
   III        MMM         MMM  GGG         GGG  DDD         DDD  MMM         MMM  PPP
   III        MMM         MMM  GGG         GGG  DDD         DDD  MMM         MMM  PPP
IIIIIIIII     MMM         MMM     GGGGGGGGG     DDDDDDDDDDDD     MMM         MMM  PPP
IIIIIIIII     MMM         MMM     GGGGGGGGG     DDDDDDDDDDDD     MMM         MMM  PPP
IIIIIIIII     MMM         MMM     GGGGGGGGG     DDDDDDDDDDDD     MMM         MMM  PPP
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**FILE**ID**IMGDMP




  IIIIII    MM      MM    GGGGGGGG  DDDDDDDD    MM      MM  PPPPPPPP
  IIIIII    MM      MM    GGGGGGGG  DDDDDDDD    MM      MM  PPPPPPPP
    II      MMMM  MMMM  GG          DD      DD  MMMM  MMMM  PP      PP
    II      MMMM  MMMM  GG          DD      DD  MMMM  MMMM  PP      PP
    II      MM  MM  MM  GG          DD      DD  MM  MM  MM  PP      PP
    II      MM  MM  MM  GG          DD      DD  MM  MM  MM  PP      PP
    II      MM      MM  GG          DD      DD  MM      MM  PPPPPPPP
    II      MM      MM  GG          DD      DD  MM      MM  PPPPPPPP
    II      MM      MM  GG  GGGGGG  DD      DD  MM      MM  PP
    II      MM      MM  GG  GGGGGG  DD      DD  MM      MM  PP
    II      MM      MM  GG      GG  DD      DD  MM      MM  PP              ....
    II      MM      MM  GG      GG  DD      DD  MM      MM  PP              ....
  IIIIII    MM      MM    GGGGGG    DDDDDDDD    MM      MM  PP              ....
  IIIIII    MM      MM    GGGGGG    DDDDDDDD    MM      MM  PP              ....

LL            IIIIII      SSSSSSSS
LL            IIIIII      SSSSSSSS
LL              II      SS
LL              II      SS
LL              II      SS
LL              II      SS
LL              II        SSSSSS
LL              II        SSSSSS
LL              II              SS
LL              II              SS
LL              II              SS
LL              II              SS
LLLLLLLLLL    IIIIII    SSSSSSSS
LLLLLLLLLL    IIIIII    SSSSSSSS
```

```
0000          .TITLE  IMGDMP
0000          .IDENT  /V04-000/
0000
0000    ;
0000    ;*****************************************************************************
0000    ;*                                                                           *
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0000    ;*                                                                           *
0000    ;*                                                                           *
0000    ;*****************************************************************************
0000    ;
0000
0000    ;++
0000    ; FACILITY:       IMAGE DUMP
0000    ;
0000    ; ABSTRACT:       Dump address space and other context of a process.
0000    ;
0000    ;
0000    ; ENVIRONMENT:  User mode
0000    ;
0000    ; AUTHOR:         Wayne Cardoza
0000    ;
0000    ; CREATION DATE: 14-Feb-1983
0000    ;
0000    ; MODIFIED BY:
0000    ;
0000    ;       V03-006 WMC0006         Wayne Cardoza   12-Jun-1984
0000    ;               Fix incorrect register after MOVC3
0000    ;               Improve performance.
0000    ;
0000    ;       V03-005 WMC0005         Wayne Cardoza   06-Sep-1983
0000    ;               Add .DMP to file name to keep logical name for image from
0000    ;               having an effect.
0000    ;
0000    ;       V03-004 WMC0004         Wayne Cardoza   29-Aug-1983
0000    ;               Properly save SP in EXEC mode.
0000    ;
0000    ;       V03-003 WMC0003         Wayne Cardoza   01-Jul-1983
0000    ;               SYS$IMGACT has been redesigned.
0000    ;
0000    ;       V03-002 WMC0002         Wayne Cardoza   30-Apr-1983
```

```
                                   0000     58 ;               More GETJPI items.
                                   0000     59 ;
                                   0000     60 ;       V03-001 WMC0001         Wayne Cardoza    20-Apr-1983
                                   0000     61 ;               Add SYS$PROCDMP translation.
                                   0000     62 ;
```

```
                        0000     ;
                    00000000             .PSECT  $AAIMGDMP,LONG
                        0000             .DEFAULT DISPLACEMENT,WORD
                        0000     ;
                        0000     ; Data Structure Definitions
                        0000     ;
                        0000             $IMGDMPDEF
                        0000             $IHDDEF
                        0000             $IHIDEF
                        0000             $IFDDEF
                        0000             $JPIDEF
                        0000             $PSLDEF
                        0000             $SFDEF
                        0000     ;
                        0000     ; This is the standard header for debuggers.
                        0000     ; It must be the first thing in the image.
                        0000     ;
                        0000     BEGIN_DUMP:
   00000000 00000000    0000             .LONG   0,0
            0000000C'   0008             .LONG   BEGIN_CODE-BEGIN_DUMP
```

```
                                000C  ;++
                                000C  ;
                                000C  ; Functional Description:
                                000C  ;         This is the main routine for taking an image dump.  It is JMPed to
                                000C  ;         after being merged in by a condition handler.
                                000C  ;
                                000C  ; Calling Sequence:
                                000C  ;         JMP
                                000C  ;
                                000C  ; Input Parameters:
                                000C  ;         signal and mechanism arrays
                                000C  ;
                                000C  ; Implicit Inputs:
                                000C  ;         a great many
                                000C  ;
                                000C  ; Output Parameters:
                                000C  ;         none
                                000C  ;
                                000C  ; Implicit Outputs:
                                000C  ;         none
                                000C  ;
                                000C  ; Routines Called:
                                000C  ;         none
                                000C  ;
                                000C  ; Routine Value:
                                000C  ;         none
                                000C  ;
                                000C  ; Signals:
                                000C  ;         none
                                000C  ;
                                000C  ; Side Effects:
                                000C  ;         dump taken
                                000C  ;
                                000C  ;--
                                000C  ;
                                000C  BEGIN_CODE:
                                000C  ;
                                000C  ; Save registers, clean up frame, save misc process context
                                000C  ;
              50   04 AC    D0  000C          MOVL    4(AP),R0                        ; Address of signal array
              51   08 AC    D0  0010          MOVL    8(AP),R1                        ; Address of mechanism array
          0836'CF     5C    D0  0014          MOVL    AP,MISC+IMGDMP$L_AP             ; AP for the condition handler
       0802'CF     0C A1    7D  0019          MOVQ    12(R1),MISC+IMGDMP$L_R0 ; Get R0 and R1 from mechanism array
       083A'CF     0C AD    D0  001F          MOVL    SF$L_SAVE_FP(FP),MISC+IMGDMP$L_FP
   080A'CF    14 AD    28   28  0025          MOVC3   #10*4,SF$L_SAVE_REGS(FP),MISC+IMGDMP$L_R2
     0832'CF      5D   3C   C1  002C          ADDL3   #SF$L_SAVE_REGS+<10*4>,FP,MISC+IMGDMP$L_SP
                                0032  ;
                                0032  ; Save the correct SP if we aren't in user mode
                                0032  ;
                   50       DC  0032          MOVPSL  R0
    50     50    02    18   EF  0034          EXTZV   #PSL$V_CURMOD,#PSL$S_CURMOD,R0,R0
                 03    50   D1  0039          CMPL    R0,#PSL$C_USER
                       14   13  003C          BEQL    3$                              ; All OK, this is user mode
               0832'CF      D4  003E          CLRL    MISC+IMGDMP$L_SP                ; Tell service not to change anything
                                0042          $ADJSTK_S ACMODE = #PSL$C_USER,-
                                0042                  NEWADR = MISC+IMGDMP$L_SP ; Get the old value here
                                0052  ;
```

```
                              0052  ; Make sure we can check the version number on analysis
                              0052  ;
         0846'CF    03    D0  0052  3$:     MOVL    #IMGDMP$C_VERSION,MISC+IMGDMP$L_VERSION
                              0057  ;
                              0057  ; Some misc data
                              0057  ;
                              0057          $GETJPI_S ITMLST = JPILST
  0842'CF   0000000C'9F   D0  006C          MOVL    @#CTL$AL_STACK+12,MISC+IMGDMP$L_USRSTK ; Top of user stack
                              0075  ;
                              0075  ; Get the image header, create dump file of same name as image
                              0075  ;
       52   00000004'9F   D0  0075          MOVL    @#MMG$IMGHDRBUF+4,R2    ; IFD
         03FE'CF    08 A2 3C  007C          MOVZWL  IFD$W_CHAN(R2),IMG_CHANNEL
                              0082          $QIOW_S CHAN = IMG_CHANNEL,-    ; Read first block of image header
                              0082                  FUNC = #IO$_READVBLK,-
                              0082                  P1   = IMGHDRBUF,-
                              0082                  P2   = #512,-
                              0082                  P3   = #1
                 03 50    E8  00A9          BLBS    R0,4$
                  01C9    31  00AC          BRW     EXIT
          52   0402'CF    9E  00AF  4$:     MOVAB   IMGHDRBUF,R2
            50    06 A2   3C  00B4          MOVZWL  IHD$W_IMGIDOFF(R2),R0   ; Get image name
                 52 50    C0  00B8          ADDL    R0,R2
                 50 62    9A  00BB          MOVZBL  IHI$T_IMGNAM(R2),R0     ; Length of image name
     0B74'CF    50 04     81  00BE          ADDB3   #4,R0,DMP_FAB+FAB$B_FNS ; Allow for the .DMP
  0702'CF    01 A2 50     28  00C4          MOVC3   R0,IHI$T_IMGNAM+1(R2),MAP+256 ; Move the image name
     63   504D442E 8F     D0  00CB          MOVL    #^A/.DMP7,(R3)                ; Add default extension to end of MOVC3
    0B6C'CF    0702'CF    9E  00D2          MOVAB   MAP+256,DMP_FAB+FAB$L_FNA ; Address of file name
                              00D9  ;
                              00D9  ;       If the logical name SYS$PROCDMP exists it will be used to place the dump
                              00D9  ;
                              00D9          $TRNLOG_S LOGNAM = SYS$PROCDMP,-
                              00D9                    RSLBUF = PROCDMPNAM,-
                              00D9                    RSLLEN = PROCDMPNAM
                 29 50    E9  00F2          BLBC    R0,5$                           ; Assume no translation
       00000000'8F  50    D1  00F5          CMPL    R0,#SS$_NOTRAN
                    20    13  00FC          BEQL    5$
          51   0602'CF    9E  00FE          MOVAB   MAP,R1
          51   0A15'CF    C0  0103          ADDL    PROCDMPNAM,R1                   ; Get to end of translation
     61   504D442E 8F     D0  0108          MOVL    #^A/.DMP/,(R1)                  ; Add default extension
    0B70'CF    0602'CF    9E  010F          MOVAB   MAP,DMP_FAB+FAB$L_DNA           ; Put default in FAB
 0B75'CF    0A15'CF   04  81  0116          ADDB3   #4,PROCDMPNAM,DMP_FAB+FAB$B_DNS
                              011E  5$:     $CREATE FAB = DMP_FAB                   ; Create dump file
                              0129          $CONNECT RAB = DMP_RAB
                 03 50    E8  0134          BLBS    R0,20$
                  013E    31  0137  10$:    BRW     EXIT
           0BC8'CF    01  D0  013A  20$:    MOVL    #1,DMP_RAB+RAB$L_BKT            ; First block
     0BB2'CF    0200 8F   B0  013F          MOVW    #512,DMP_RAB+RAB$W_RSZ          ; One page
    0BB8'CF    0402'CF    9E  0146          MOVAB   IMGHDRBUF,DMP_RAB+RAB$L_RBF
                              014D          $WRITE  RAB = DMP_RAB                   ; Write image header to dump file
                              0158  ;
                              0158  ; Initialize to write P0 and user stack to dump file
                              0158  ;
           0BC8'CF    04  D0  0158          MOVL    #4,DMP_RAB+RAB$L_BKT            ; First data block
           0B35'CF    03  D0  015D          MOVL    #3,MAP_BLOCK                    ; First map block
           083E'CF    03  D0  0162          MOVL    #3,MISC+IMGDMP$L_FIRST_MAP
   52   084A'CF    F7 8F  78  0167          ASHL    #-9,MISC+IMGDMP$C_FREE_P0,R2 ; Page count
```

```
                          52  D6  016E   199           INCL    R2
                     0BB8'CF  D4  0170   200           CLRL    DMP_RAB+RAB$L_RBF          ; VA
              55     0602'CF  9E  0174   201           MOVAB   MAP,R5                     ; Position in map block
                          65  D4  0179   202           CLRL    (R5)                       ; Initialize the map
                        00FB  30  017B   203           BSBW    WRITE_IT                   ; Process P0 space
                                  017E   204   ;
   53   084E'CF   00000200 8F  C3  017E   205           SUBL3   #^X200,MISC+IMGDMP$L_FREE_P1,R3 ; Starting address of used stack
         52   0000000C'9F  53  C3  0188   206           SUBL3   R3,@#CTL$AL_STACK+12,R2
              52    52   F7 8F  78  0190   207           ASHL    #-9,R2,R2                  ; Page count
                     0BB8'CF  53  D0  0195   208           MOVL    R3,DMP_RAB+RAB$L_RBF       ; VA
                        00DC  30  019A   209           BSBW    WRITE_IT                   ; Process P1 space
                                  019D   210   ;
          0BC8'CF    0B35'CF  D0  019D   211           MOVL    MAP_BLOCK,DMP_RAB+RAB$L_BKT
          0BB2'CF    0200 8F  B0  01A4   212           MOVW    #512,DMP_RAB+RAB$W_RSZ     ; One page
          0BB8'CF    0602'CF  9E  01AB   213           MOVAB   MAP,DMP_RAB+RAB$L_RBF      ; Write the last map block
                                  01B2   214           $WRITE RAB = DMP_RAB
                       01 50  E8  01BD   215           BLBS    R0,30$
                              05  01C0   216           RSB
                                  01C1   217   ;
                                  01C1   218   ; Save misc pieces of P1
                                  01C1   219   ; Errors on change mode calls are ignored - no priv
                                  01C1   220   ;
                                  01C1   221   30$:    $CMEXEC_S  ROUTIN = PRIV_STKS    ; Save EXEC and kernel stacks
         52   00000000'8F     D0  01CE   222           MOVL    #CTL$GL_VECTORS,R2         ; Base of vector page
                       53  52  D0  01D5   223           MOVL    R2,R3                      ; Top (one page)
                  08CE'CF  52  D0  01D8   224           MOVL    R2,MISC+IMGDMP$L_VECPAG_VA
         08CA'CF   0B39'CF     D0  01DD   225           MOVL    NEXT_FILE,MISC+IMGDMP$L_VECPAG_BLK ; The file block to be used
                        01B5  30  01E4   226           BSBW    WRITE_MISC
                  08D2'CF  54  D0  01E7   227           MOVL    R4,MISC+IMGDMP$L_VECPAG_SIZ ; Actual page count
         52    FFFFFE00'8F    D0  01EC   228           MOVL    #PIO$A_TRACE-512,R2        ; Base of PIO (RMS) area
         53    09FF C2        9E  01F3   229           MOVAB   <<5*512>-1>(R2),R3         ; Top
                  08DA'CF  52  D0  01F8   230           MOVL    R2,MISC+IMGDMP$L_PIO_VA
         08D6'CF   0B39'CF     D0  01FD   231           MOVL    NEXT_FILE,MISC+IMGDMP$L_PIO_BLK ; The file block to be used
                        0195  30  0204   232           BSBW    WRITE_MISC
                  08DE'CF  54  D0  0207   233           MOVL    R4,MISC+IMGDMP$L_PIO_SIZ ; Actual page count
         52    00000000'8F    D0  020C   234           MOVL    #CTL$GL_IAFLINK,R2         ; Base of image activator context page
                       53  52  D0  0213   235           MOVL    R2,R3                      ; Top (one page)
                  08E6'CF  52  D0  0216   236           MOVL    R2,MISC+IMGDMP$L_IMGCTX_VA
         08E2'CF   0B39'CF     D0  021B   237           MOVL    NEXT_FILE,MISC+IMGDMP$L_IMGCTX_BLK ; The file block to be used
                        0177  30  0222   238           BSBW    WRITE_MISC
                  08EA'CF  54  D0  0225   239           MOVL    R4,MISC+IMGDMP$L_IMGCTX_SIZ ; Actual page count
         52    FFFFF800'8F    D0  022A   240           MOVL    #CTL$A_COMMON-<4*512>,R2 ; Base user writeable context pages
         53    00000200'8F    D0  0231   241           MOVL    #CTL$AG_CMEDATA+512,R3   ; Top (one page after AME context)
                  08F2'CF  52  D0  0238   242           MOVL    R2,MISC+IMGDMP$L_USRCTX_VA
         08EE'CF   0B39'CF     D0  023D   243           MOVL    NEXT_FILE,MISC+IMGDMP$L_USRCTX_BLK ; The file block to be used
                        0155  30  0244   244           BSBW    WRITE_MISC
                  08F6'CF  54  D0  0247   245           MOVL    R4,MISC+IMGDMP$L_USRCTX_SIZ ; Actual page count
                                  024C   246   ;
                                  024C   247   ; Write out the misc data block
                                  024C   248   ;
          0BC8'CF      02     D0  024C   249           MOVL    #2,DMP_RAB+RAB$L_BKT       ; Misc data block
          0BB2'CF    0200 8F  B0  0251   250           MOVW    #512,DMP_RAB+RAB$W_RSZ     ; One page
          0BB8'CF    0802'CF  9E  0258   251           MOVAB   MISC,DMP_RAB+RAB$L_RBF
                                  025F   252           $WRITE  RAB = DMP_RAB              ; Write misc data block
                       0B 50  E9  026A   253           BLBC    R0,EXIT
                                  026D   254   ;
                                  026D   255           $CLOSE FAB = DMP_FAB               ; Close the dump file
```

```
                      0278   256 ;
                 05   0278   257 EXIT:   RSB
                      0279   258
```

```
                                   0279   260 ;
                                   0279   261 ; This routine processes a range of address space, filling in the map,
                                   0279   262 ; writing the dump, and skipping unaccessable pages.
                                   0279   263 ;
                                   0279   264 ; Inputs
                                   0279   265 ;         R2 -> page count
                                   0279   266 ;         R5 -> current address map entry
                                   0279   267 ;         DMP_RAB+RAB$L_RBF -> starting VA
                                   0279   268 ;         DMP_RAB+RAB$L_BKT -> starting file block
                                   0279   269 ; Outputs
                                   0279   270 ;         R5 -> updated
                                   0279   271 ;         NEXT_FILE -> next available file block
                                   0279   272 ;
                                   0279   273 WRITE_IT:
  0BB2'CF     0200 8F        B0    0279   274 10$:    MOVW     #512,DMP_RAB+RAB$W_RSZ         ; One page
                                   0280   275         $WRITE   RAB = DMP_RAB                  ; Try to write the page
               5E 50         E9    028B   276         BLBC     R0,50$                         ; Error - try next page
      04 A5  0BB8'CF         D0    028E   277         MOVL     DMP_RAB+RAB$L_RBF,4(R5)        ; Starting VA
                  52         D7    0294   278         DECL     R2                             ; One less page
 0BB8'CF     00000200 8F     C0    0296   279         ADDL     #512,DMP_RAB+RAB$L_RBF         ; Next VA
              0BC8'CF        D6    029F   280         INCL     DMP_RAB+RAB$L_BKT              ; Next file block
                  65         D6    02A3   281         INCL     (R5)                           ; Another block
     56      0000007F 8F     D0    02A5   282         MOVL     #127,R6                        ; Start with 127 page write
               53 52         D0    02AC   283 20$:    MOVL     R2,R3                          ; Remaining pages
               56 53         D1    02AF   284         CMPL     R3,R6                          ; Check against maximum
                  03         1B    02B2   285         BLEQU    30$
               53 56         D0    02B4   286         MOVL     R6,R3                          ; Write the maximum
         54    53 09         78    02B7   287 30$:    ASHL     #9,R3,R4                       ; Get byte count
         0BB2'CF 54          B0    02BB   288         MOVW     R4,DMP_RAB+RAB$W_RSZ
                                   02C0   289         $WRITE   RAB = DMP_RAB                  ; Write next page in run
               08 50         E8    02CB   290         BLBS     R0,40$                         ; Success - continue the run of pages
                  56         D7    02CE   291         DECL     R6                             ; Try one page less
                  DA         14    02D0   292         BGTR     20$                            ; Go try again
                  2C         10    02D2   293         BSBB     NEXT_MAP_SEGMENT               ; Failure - next segment
                  16         11    02D4   294         BRB      50$
         0BC8'CF 53          C0    02D6   295 40$:    ADDL     R3,DMP_RAB+RAB$L_BKT           ; Next file block
         0BB8'CF 54          C0    02DB   296         ADDL     R4,DMP_RAB+RAB$L_RBF           ; Next VA
               65 53         C0    02E0   297         ADDL     R3,(R5)                        ; Keep count
               52 53         C2    02E3   298         SUBL     R3,R2                          ; Remaining pages
                  C4         14    02E6   299         BGTR     20$                            ; Continue
                  16         10    02E8   300         BSBB     NEXT_MAP_SEGMENT               ; Done with the range - next segment
                  0C         11    02EA   301         BRB      60$
 0BB8'CF     00000200 8F     C0    02EC   302 50$:    ADDL     #512,DMP_RAB+RAB$L_RBF
               81 52         F5    02F5   303         SOBGTR   R2,10$
    0B39'CF   0BC8'CF        D0    02F8   304 60$:    MOVL     DMP_RAB+RAB$L_BKT,NEXT_FILE ; Next available file block
                  05               02FF   305         RSB                                     ; Done with the range
                                   0300   306 ;
                                   0300   307 ;
                                   0300   308 ; Set up the next map segment
                                   0300   309 ; A map block is written if necessary
                                   0300   310 ;
                                   0300   311 ; Inputs
                                   0300   312 ;         R5 -> current map entry
                                   0300   313 ;         MAP_BLOCK -> file block of current bap blcok
                                   0300   314 ; Outputs
                                   0300   315 ;         R5 -> updated
                                   0300   316 ;         MAP_BLOCK -> updated if map was written
```

```
                                    0300   317 ;
                                    0300   318 NEXT_MAP_SEGMENT:
                     55     08  C0  0300   319          ADDL    #8,R5                   ; Get to available space
                     07FA'CF    9F  0303   320          PUSHAB  MAP_END
                     8E     55  D1  0307   321          CMPL    R5,(SP)+                ; Is this the end
                            45  12  030A   322          BNEQ    10$                     ; No - use it
                     65     01  CE  030C   323          MNEGL   #1,(R5)                 ; Mark map filled
                     0BB8'CF    DD  030F   324          PUSHL   DMP_RAB+RAB$L_RBF       ; Save VA
                     0BC8'CF    DD  0313   325          PUSHL   DMP_RAB+RAB$L_BKT       ; Save next available block
          0BC8'CF    0B35'CF    D0  0317   326          MOVL    MAP_BLOCK,DMP_RAB+RAB$L_BKT
          0BB2'CF    0200 8F    B0  031E   327          MOVW    #512,DMP_RAB+RAB$W_RSZ  ; One page
          0BB8'CF    0602'CF    9E  0325   328          MOVAB   MAP,DMP_RAB+RAB$L_RBF
                                    032C   329          $WRITE  RAB = DMP_RAB           ; Write out this map block
                         1A 50  E9  0337   330          BLBC    R0,20$
                     0B35'CF 8E D0  033A   331          MOVL    (SP)+,MAP_BLOCK         ; Next block is for map
  0BC8'CF    0B35'CF        01  C1  033F   332          ADDL3   #1,MAP_BLOCK,DMP_RAB+RAB$L_BKT ; Next available block
                     0BB8'CF 8E D0  0347   333          MOVL    (SP)+,DMP_RAB+RAB$L_RBF ; Restore VA
                     55  0602'CF 9E 034C   334          MOVAB   MAP,R5
                            65  D4  0351   335 10$:     CLRL    (R5)                    ; No pages yet in map segment
                                05  0353   336          RSB
                                    0354   337 ;
                          FF21  31  0354   338 20$:     BRW     EXIT
```

```
                                 0357  ;
                                 0357  ; Routines to save misc portions of P1 address space
                                 0357  ;
                                 0357  ;
                                 0357  ; Save the EXEC and kernel stacks
                                 0357  ;
                                 0357  PRIV_STKS:
                           0000  0357          .WORD   0
  52   00000000'9F   D0          0359          MOVL    @#CTL$AL_STACKLIM,R2    ; Kernel stack low limit
  53   00000000'9F   D0          0360          MOVL    @#CTL$AL_STACK,R3       ; High limit
      08B6'CF   52   D0          0367          MOVL    R2,MISC+IMGDMP$L_KSTK_VA
 08B2'CF   0B39'CF   D0          036C          MOVL    NEXT_FILE,MISC+IMGDMP$L_KSTK_BLK ; Next file block
                27   10          0373          BSBB    WRITE_MISC              ; Write out misc address space
      08BA'CF   54   D0          0375          MOVL    R4,MISC+IMGDMP$L_KSTK_SIZ
  52   00000004'9F   D0          037A          MOVL    @#CTL$AL_STACKLIM+4,R2  ; Exec stack low limit
  53   00000004'9F   D0          0381          MOVL    @#CTL$AL_STACK+4,R3     ; High limit
      08C2'CF   52   D0          0388          MOVL    R2,MISC+IMGDMP$L_ESTK_VA
 08BE'CF   0B39'CF   D0          038D          MOVL    NEXT_FILE,MISC+IMGDMP$L_ESTK_BLK ; Next file block
                06   10          0394          BSBB    WRITE_MISC              ; Write out misc address space
      08C6'CF   54   D0          0396          MOVL    R4,MISC+IMGDMP$L_ESTK_SIZ
                     04          039B          RET
                                 039C  ;
                                 039C  ;
                                 039C  ; Write out misc address space
                                 039C  ;  Input
                                 039C  ;         R2 = low address
                                 039C  ;         R3 = high address
                                 039C  ;         NEXT_FILE = next available file block
                                 039C  ;  Output
                                 039C  ;         R4 = page count
                                 039C  ;         NEXT_FILE = updated
                                 039C  ;
                                 039C  WRITE_MISC:
 0BC8'CF   0B39'CF   D0          039C          MOVL    NEXT_FILE,DMP_RAB+RAB$L_BKT ; First block
      0BB8'CF   52   D0          03A3          MOVL    R2,DMP_RAB+RAB$L_RBF    ; Starting VA
           53   52   C2          03A8          SUBL    R2,R3                   ; Byte count
  53   53   F7 8F    78          03AB          ASHL    #-9,R3,R3               ; Pages - 1
                53   D6          03B0          INCL    R3                      ; Pages
                54   D4          03B2          CLRL    R4                      ; No pages
55   53   00000200 8F   C5       03B4  10$:    MULL3   #512,R3,R5              ; Byte count
   0000FE00 8F   55  D1          03BC          CMPL    R5,#<127*512>           ; Is it greater than maximum
           07   1B               03C3          BLEQU   20$                     ; No
  55   0000FE00 8F   D0          03C5          MOVL    #<127*512>,R5
      0BB2'CF   55   B0          03CC  20$:    MOVW    R5,DMP_RAB+RAB$W_RSZ
                                 03D1          $WRITE  RAB = DMP_RAB
           17   50   E9          03DC          BLBC    R0,30$                  ; Done
      0BB8'CF   55   C0          03DF          ADDL    R5,DMP_RAB+RAB$L_RBF    ; New address
  55   55   F7 8F    78          03E4          ASHL    #-9,R5,R5               ; Page count
           54   55   C0          03E9          ADDL    R5,R4                   ; Count pages
      0BC8'CF   55   C0          03EC          ADDL    R5,DMP_RAB+RAB$L_BKT    ; New file block number
           53   55   C2          03F1          SUBL    R5,R3                   ; Pages left
                BE   1A          03F4          BGTRU   10$                     ; More to do
 0B39'CF   0BC8'CF   D0          03F6  30$:    MOVL    DMP_RAB+RAB$L_BKT,NEXT_FILE ; Next available file block
                     05          03FD          RSB
```

```
                                03FE   395 ; Data
                                03FE   396 ;
                                03FE   397 ;
                                03FE   398 IMG_CHANNEL:                                    ; Channel for the image header
                     00000000   03FE   399         .LONG   0
                                0402   400 ;
                                0402   401 IMGHDRBUF:                                      ; Buffer for image header (first block)
                     00000602   0402   402         .BLKB   512
                                0602   403 ;
                     00000802   0602   404 MAP:    .BLKB   512                             ; Address map
                     000007FA   0802   405 MAP_END = .-8                                   ; Last available map slot
                                0802   406 ;
                     00000A02   0802   407 MISC:   .BLKB   512                             ; Misc data block
                                0A02   408 ;
                                0A02   409 SYS$PROCDMP:
52 50 24 53 59 53 00000A0A'010E0000'   0A02   410         .ASCID  /SYS$PROCDMP/
                  50 4D 44 43 4F   0A10
                                0A15   411 ;
                                0A15   412 PROCDMPNAM:                                     ; Translation of SYS$PROCDMP
                     000000FF   0A15   413         .LONG   255
                     00000602'  0A19   414         .ADDRESS MAP
                                0A1D   415 ;
                    0404 0004   0A1D   416 JPILST: .WORD   4,JPI$_FREP0VA
                     0000084A'  0A21   417         .ADDRESS MISC+IMGDMP$L_FREE_P0
                     00000000   0A25   418         .LONG   0
                    0405 0004   0A29   419         .WORD   4,JPI$_FREP1VA
                     0000084E'  0A2D   420         .ADDRESS MISC+IMGDMP$L_FREE_P1
                     00000000   0A31   421         .LONG   0
                    0301 0004   0A35   422         .WORD   4,JPI$_ASTEN
                     00000856'  0A39   423         .ADDRESS MISC+IMGDMP$L_ASTEN
                     00000000   0A3D   424         .LONG   0
                    0300 0004   0A41   425         .WORD   4,JPI$_ASTACT
                     00000852'  0A45   426         .ADDRESS MISC+IMGDMP$L_ASTACT
                     00000000   0A49   427         .LONG   0
                    0400 0008   0A4D   428         .WORD   8,JPI$_CURPRIV
                     0000085A'  0A51   429         .ADDRESS MISC+IMGDMP$Q_CURPRIV
                     00000000   0A55   430         .LONG   0
                    0317 0004   0A59   431         .WORD   4,JPI$_EFCS
                     00000862'  0A5D   432         .ADDRESS MISC+IMGDMP$L_EFCS
                     00000000   0A61   433         .LONG   0
                    0318 0004   0A65   434         .WORD   4,JPI$_EFCU
                     00000866'  0A69   435         .ADDRESS MISC+IMGDMP$L_EFCU
                     00000000   0A6D   436         .LONG   0
                    030F 0004   0A71   437         .WORD   4,JPI$_BIOCNT
                     0000086A'  0A75   438         .ADDRESS MISC+IMGDMP$L_BIOCNT
                     00000000   0A79   439         .LONG   0
                    0310 0004   0A7D   440         .WORD   4,JPI$_BIOLM
                     0000086E'  0A81   441         .ADDRESS MISC+IMGDMP$L_BIOLM
                     00000000   0A85   442         .LONG   0
                    040C 0004   0A89   443         .WORD   4,JPI$_BUFIO
                     00000872'  0A8D   444         .ADDRESS MISC+IMGDMP$L_BUFIO
                     00000000   0A91   445         .LONG   0
                    0311 0004   0A95   446         .WORD   4,JPI$_BYTCNT
                     00000876'  0A99   447         .ADDRESS MISC+IMGDMP$L_BYTCNT
                     00000000   0A9D   448         .LONG   0
                    031A 0004   0AA1   449         .WORD   4,JPI$_BYTLM
                     0000087A'  0AA5   450         .ADDRESS MISC+IMGDMP$L_BYTLM
```

```
        00000000  0AA9   451           .LONG   0
      0312 0004   0AAD   452           .WORD   4,JPI$_DIOCNT
       0000087E'  0AB1   453           .ADDRESS MISC+IMGDMP$L_DIOCNT
        00000000  0AB5   454           .LONG   0
      0313 0004   0AB9   455           .WORD   4,JPI$_DIOLM
       00000882'  0ABD   456           .ADDRESS MISC+IMGDMP$L_DIOLM
        00000000  0AC1   457           .LONG   0
      040B 0004   0AC5   458           .WORD   4,JPI$_DIRIO
       00000886'  0AC9   459           .ADDRESS MISC+IMGDMP$L_DIRIO
        00000000  0ACD   460           .LONG   0
      0314 0004   0AD1   461           .WORD   4,JPI$_FILCNT
       0000088A'  0AD5   462           .ADDRESS MISC+IMGDMP$L_FILCNT
        00000000  0AD9   463           .LONG   0
      040F 0004   0ADD   464           .WORD   4,JPI$_FILLM
       0000088E'  0AE1   465           .ADDRESS MISC+IMGDMP$L_FILLM
        00000000  0AE5   466           .LONG   0
      0315 0004   0AE9   467           .WORD   4,JPI$_TQCNT
       0000089A'  0AED   468           .ADDRESS MISC+IMGDMP$L_TQCNT
        00000000  0AF1   469           .LONG   0
      0410 0004   0AF5   470           .WORD   4,JPI$_TQLM
       0000089E'  0AF9   471           .ADDRESS MISC+IMGDMP$L_TQLM
        00000000  0AFD   472           .LONG   0
      030E 0004   0B01   473           .WORD   4,JPI$_ASTCNT
       000008A2'  0B05   474           .ADDRESS MISC+IMGDMP$L_ASTCNT
        00000000  0B09   475           .LONG   0
      0409 0004   0B0D   476           .WORD   4,JPI$_ASTLM
       000008A6'  0B11   477           .ADDRESS MISC+IMGDMP$L_ASTLM
        00000000  0B15   478           .LONG   0
      031F 0004   0B19   479           .WORD   4,JPI$_ENQCNT
       000008AA'  0B1D   480           .ADDRESS MISC+IMGDMP$L_ENQCNT
        00000000  0B21   481           .LONG   0
      0320 0004   0B25   482           .WORD   4,JPI$_ENQLM
       000008AE'  0B29   483           .ADDRESS MISC+IMGDMP$L_ENQLM
        00000000  0B2D   484           .LONG   0
        00000000  0B31   485           .LONG   0
                  0B35   486   ;
                  0B35   487   MAP_BLOCK:                                          ; File block for current address map
        00000000  0B35   488           .LONG   0
                  0B39   489   ;
                  0B39   490   NEXT_FILE:                                          ; Next available file block
        00000000  0B39   491           .LONG   0
                  0B3D   492   ;
                  0B3D   493           .ALIGN  LONG
                  0B40   494   DMP_FAB: $FAB   FAC = <BIO,PUT>,-
                  0B40   495                   DNM = <.DMP>
                  0B90   496   DMP_RAB: $RAB   FAB = DMP_FAB,-
                  0B90   497                   RSZ = 512,-
                  0B90   498                   ROP = BIO
                  0BD4   499   ;
                  0BD4   500           .END
```

```
$$.TAB                          = 00000B90 R      01        IMGDMP$L_ESTK_SIZ               = 000000C4
$$.TABEND                       = 00000BD4 R      01        IMGDMP$L_ESTK_VA                = 000000C0
$$.TMP                          = 00000800                  IMGDMP$L_FILCNT                 = 00000088
$$.TMP1                         = 00000001                  IMGDMP$L_FILLM                  = 0000008C
$$.TMP2                         = 000000CF                  IMGDMP$L_FIRST_MAP              = 0000003C
$$.TMPX                         = 00000000 R      03        IMGDMP$L_FP                     = 00000038
$$.TMPX1                        = 00000004                  IMGDMP$L_FREE_P0                = 00000048
$$T1                            = 00000001                  IMGDMP$L_FREE_P1                = 0000004C
BEGIN_CODE                        0000000C R      01        IMGDMP$L_IMGCTX_BLK             = 000000E0
BEGIN_DUMP                        00000000 R      01        IMGDMP$L_IMGCTX_SIZ             = 000000E8
CTL$AG_CMEDATA                    ********     X  01        IMGDMP$L_IMGCTX_VA              = 000000E4
CTL$AL_STACK                      ********     X  01        IMGDMP$L_KSTK_BLK               = 000000B0
CTL$AL_STACKLIM                   ********     X  01        IMGDMP$L_KSTK_SIZ               = 000000B8
CTL$A_COMMON                      ********     X  01        IMGDMP$L_KSTK_VA                = 000000B4
CTL$GL_IAFLINK                    ********     X  01        IMGDMP$L_PIO_BLK                = 000000D4
CTL$GL_VECTORS                    ********     X  01        IMGDMP$L_PIO_SIZ                = 000000DC
DMP_FAB                           00000B40 R      01        IMGDMP$L_PIO_VA                 = 000000D8
DMP_RAB                           00000B90 R      01        IMGDMP$L_PRCCNT                 = 00000090
EXIT                              00000278 R      01        IMGDMP$L_PRCLM                  = 00000094
FAB$B_DNS                       = 00000035                  IMGDMP$L_R0                     = 00000000
FAB$C_BID                       = 00000003                  IMGDMP$L_R1                     = 00000004
FAB$C_BLN                       = 00000050                  IMGDMP$L_R10                    = 00000028
FAB$C_SEQ                       = 00000000                  IMGDMP$L_R11                    = 0000002C
FAB$C_VAR                       = 00000002                  IMGDMP$L_R2                     = 00000008
FAB$L_ALQ                       = 00000010                  IMGDMP$L_R3                     = 0000000C
FAB$L_DNA                       = 00000030                  IMGDMP$L_R4                     = 00000010
FAB$L_FOP                       = 00000004                  IMGDMP$L_R5                     = 00000014
FAB$V_BIO                       = 00000005                  IMGDMP$L_R6                     = 00000018
FAB$V_CHAN_MODE                 = 00000002                  IMGDMP$L_R7                     = 0000001C
FAB$V_FILE_MODE                 = 00000004                  IMGDMP$L_R8                     = 00000020
FAB$V_LNM_MODE                  = 00000000                  IMGDMP$L_R9                     = 00000024
FAB$V_PUT                       = 00000000                  IMGDMP$L_SP                     = 00000030
FAB$W_GBC                       = 00000048                  IMGDMP$L_TQCNT                  = 00000098
IFD$W_CHAN                      = 00000008                  IMGDMP$L_TQLM                   = 0000009C
IHD$W_IMGIDOFF                  = 00000006                  IMGDMP$L_USRCTX_BLK             = 000000EC
IHI$T_IMGNAM                    = 00000000                  IMGDMP$L_USRCTX_SIZ             = 000000F4
IMGDMP                          = 00000000                  IMGDMP$L_USRCTX_VA              = 000000F0
IMGDMP$C_LENGTH                 = 000000F8                  IMGDMP$L_USRSTK                 = 00000040
IMGDMP$C_VERSION                = 00000003                  IMGDMP$L_VECPAG_BLK             = 000000C8
IMGDMP$L_AP                     = 00000034                  IMGDMP$L_VECPAG_SIZ             = 000000D0
IMGDMP$L_ASTACT                 = 00000050                  IMGDMP$L_VECPAG_VA              = 000000CC
IMGDMP$L_ASTCNT                 = 000000A0                  IMGDMP$L_VERSION                = 00000044
IMGDMP$L_ASTEN                  = 00000054                  IMGDMP$Q_CURPRIV                = 00000058
IMGDMP$L_ASTLM                  = 000000A4                  IMGDMP$S_CURPRIV                = 00000008
IMGDMP$L_BIOCNT                 = 00000068                  IMGDMP$S_IMGDMP                 = 000000F8
IMGDMP$L_BIOLM                  = 0000006C                  IMGHDRBUF                         00000402 R      01
IMGDMP$L_BUFIO                  = 00000070                  IMG_CHANNEL                       000003FE R      01
IMGDMP$L_BYTCNT                 = 00000074                  IO$_READVBLK                      ********     X  01
IMGDMP$L_BYTLM                  = 00000078                  JPI$_ASTACT                     = 00000300
IMGDMP$L_DIOCNT                 = 0000007C                  JPI$_ASTCNT                     = 0000030E
IMGDMP$L_DIOLM                  = 00000080                  JPI$_ASTEN                      = 00000301
IMGDMP$L_DIRIO                  = 00000084                  JPI$_ASTLM                      = 00000409
IMGDMP$L_EFCS                   = 00000060                  JPI$_BIOCNT                     = 0000030F
IMGDMP$L_EFCU                   = 00000064                  JPI$_BIOLM                      = 00000310
IMGDMP$L_ENQCNT                 = 000000A8                  JPI$_BUFIO                      = 0000040C
IMGDMP$L_ENQLM                  = 000000AC                  JPI$_BYTCNT                     = 00000311
IMGDMP$L_ESTK_BLK               = 000000BC                  JPI$_BYTLM                      = 0000031A
```

```
JPI$_CURPRIV                      = 00000400
JPI$_DIOCNT                       = 00000312
JPI$_DIOLM                        = 00000313
JPI$_DIRIO                        = 0000040B
JPI$_EFCS                         = 00000317
JPI$_EFCU                         = 00000318
JPI$_ENQCNT                       = 0000031F
JPI$_ENQLM                        = 00000320
JPI$_FILCNT                       = 00000314
JPI$_FILLM                        = 0000040F
JPI$_FREP0VA                      = 00000404
JPI$_FREP1VA                      = 00000405
JPI$_TQCNT                        = 00000315
JPI$_TQLM                         = 00000410
JPILST                              00000A1D R       01
MAP                                 00000602 R       01
MAP_BLOCK                           00000B35 R       01
MAP_END                           = 000007FA R       01
MISC                                00000802 R       01
MMG$IMGHDRBUF                       ********     X   01
NEXT_FILE                           00000B39 R       01
NEXT_MAP_SEGMENT                    00000300 R       01
PIO$A_TRACE                         ********     X   01
PRIV_STKS                           00000357 R       01
PROCDMPNAM                          00000A15 R       01
PSL$C_USER                        = 00000003
PSL$S_CURMOD                      = 00000002
PSL$V_CURMOD                      = 00000018
RAB$B_RAC                         = 0000001E
RAB$C_BID                         = 00000001
RAB$C_BLN                         = 00000044
RAB$C_SEQ                         = 00000000
RAB$L_CTX                         = 00000018
RAB$L_ROP                         = 00000004
RAB$V_BIO                         = 0000000B
SF$L_SAVE_FP                      = 0000000C
SF$L_SAVE_REGS                    = 00000014
SS$_NOTRAN                          ********     X   01
SYS$ADJSTK                          ********    GX   01
SYS$CLOSE                           ********    GX   01
SYS$CMEXEC                          ********    GX   01
SYS$CONNECT                         ********    GX   01
SYS$CREATE                          ********    GX   01
SYS$GETJPI                          ********    GX   01
SYS$PROCDMP                         00000A02 R       01
SYS$QIOW                            ********    GX   01
SYS$TRNLOG                          ********    GX   01
SYS$WRITE                           ********    GX   01
WRITE_IT                            00000279 R       01
WRITE_MISC                          0000039C R       01
```

```
                                        +----------------+
                                        ! Psect synopsis !
                                        +----------------+

PSECT name                      Allocation          PSECT No.  Attributes
----------                      ----------          ---------  ----------
.  ABS  .                       00000000  (    0.)  00 (  0.)  NOPIC    USR    CON    ABS    LCL NOSHR NOEXE NORD   NOWRT NOVEC BYTE
$AAIMGDMP                       00000BD4  ( 3028.)  01 (  1.)  NOPIC    USR    CON    REL    LCL NOSHR   EXE   RD     WRT NOVEC LONG
$ABS$                           00000000  (    0.)  02 (  2.)  NOPIC    USR    CON    ABS    LCL NOSHR   EXE   RD     WRT NOVEC BYTE
$RMSNAM                         00000004  (    4.)  03 (  3.)  NOPIC    USR    CON    REL    LCL NOSHR   EXE   RD     WRT NOVEC BYTE

                                      +------------------------+
                                      ! Performance indicators !
                                      +------------------------+

Phase                     Page faults    CPU Time       Elapsed Time
-----                     -----------    --------       ------------
Initialization                     29    00:00:00.10    00:00:00.75
Command processing                155    00:00:00.77    00:00:03.10
Pass 1                            301    00:00:09.19    00:00:17.54
Symbol table sort                   0    00:00:00.87    00:00:00.96
Pass 2                            102    00:00:01.98    00:00:04.18
Symbol table output                20    00:00:00.16    00:00:00.82
Psect synopsis output               2    00:00:00.03    00:00:00.03
Cross-reference output              0    00:00:00.00    00:00:00.00
Assembler run totals              612    00:00:13.10    00:00:27.38

The working set limit was 1500 pages.
46825 bytes (92 pages) of virtual memory were used to buffer the intermediate code.
There were 40 pages of symbol table space allocated to hold 676 non-local and 17 local symbols.
500 source lines were read in Pass 1, producing 20 object records in Pass 2.
40 pages of virtual memory were used to define 32 macros.

                                     +--------------------------+
                                     ! Macro library statistics !
                                     +--------------------------+

Macro library name                       Macros defined
------------------                       --------------
_$255$DUA28:[IMGDMP.OBJ]IMGDMPLIB.MLB;1               1
_$255$DUA28:[SYS.OBJ]LIB.MLB;1                        3
_$255$DUA28:[SYSLIB]STARLET.MLB;2                    25
TOTALS (all libraries)                               29

997 GETS were required to define 29 macros.

There were no errors, warnings or information messages.

MACRO/LIS=LIS$:IMGDMP/OBJ=OBJ$:IMGDMP MSRC$:IMGDMP/UPDATE=(ENH$:IMGDMP)+EXECML$/LIB+LIB$:IMGDMPLIB/LIB
```

0186 AH-BT13A-SE
VAX/VMS V4.0

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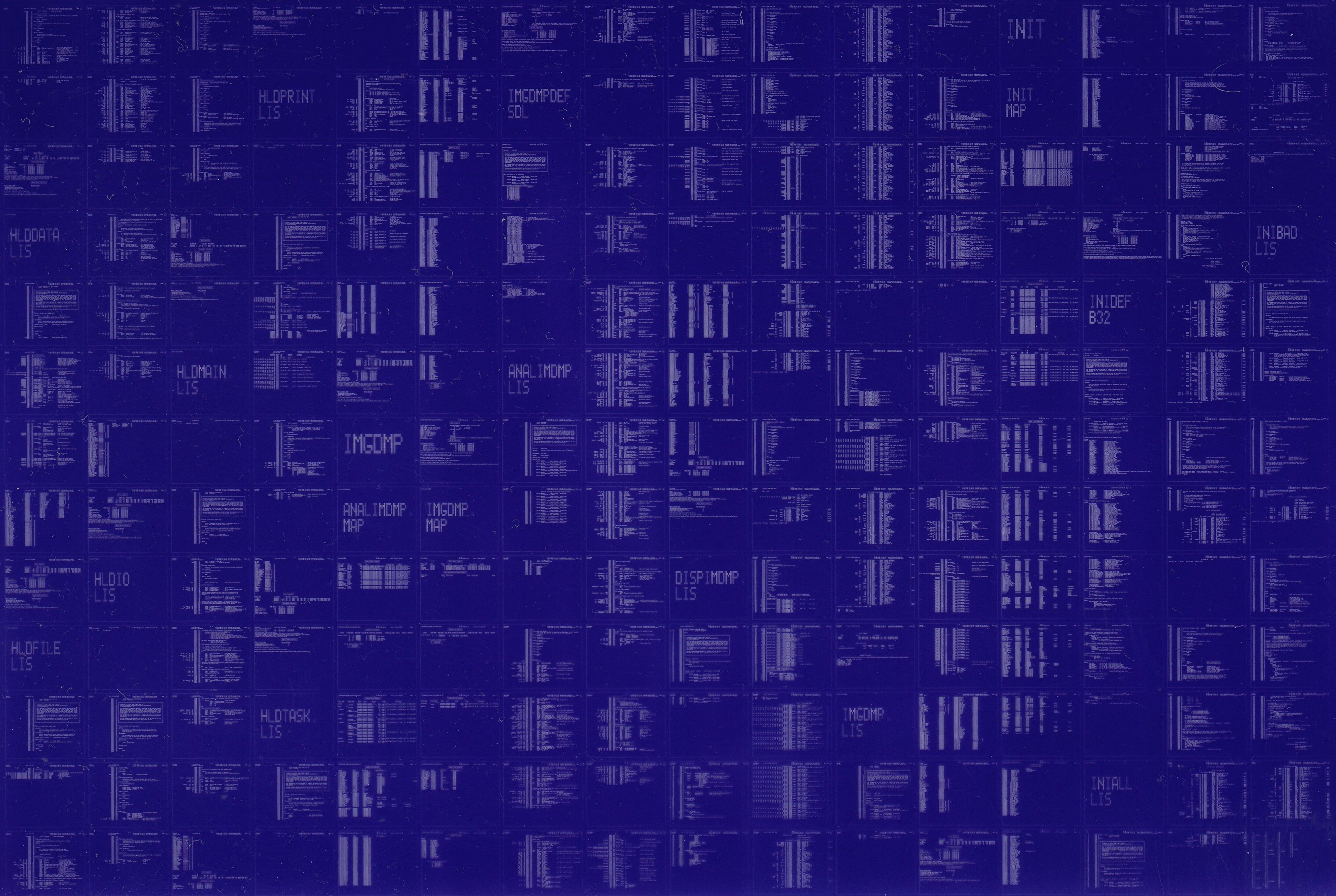

INIT

HLDPRINT LIS

IMGDMPDEF SDL

INIT MAP

HLDDATA LIS

INIBAD LIS

INIDEF B32

HLDMAIN LIS

ANALIMDMP LIS

IMGDMP

ANALIMDMP MAP

IMGDMP MAP

HLDIO LIS

DISPIMDMP LIS

HLDFILE LIS

HLDTASK LIS

IMGDMP LIS

INIALL LIS